

## **SECTION 15835 - UNIT HEATERS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes cabinet unit heaters and propeller unit heaters.

#### **1.3 SUBMITTALS**

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Wiring diagrams detailing power and control wiring and differentiating clearly between manufacturer-installed wiring and field-installed wiring.
- D. Samples of cabinet finish colors for approval.
- E. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience.
- F. Field test reports from a qualified independent inspecting and testing agency indicating and interpreting test results relative to compliance with performance requirements of unit heaters.

#### **1.4 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Firm experienced in manufacturing unit heaters similar to those indicated for this Project and that have a record of successful in-service performance.
- B. Comply with NFPA 70 for components and installation.
- C. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
  - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
  - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.5 EXTRA MATERIALS

- A. Furnish the following extra materials, matching products installed, packaged with protective covering for storage and with identification labels clearly describing contents.
  - 1. Cabinet Unit Heater Filters: Furnish one spare filter for each filter installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering unit heaters that may be incorporated in the Work include, but are not limited to, the following:
  - 1. Carrier Corp.
  - 2. Trane Co.
  - 3. Reznor Products Company
  - 4. Dunham-Bush, Inc.
  - 5. Hydrotherm Corporation, (The); A Mestek Co.
  - 6. Lennox Industries Inc.

2.2 HYDRONIC CABINET UNIT HEATERS

- A. Description: Surface-mounting cabinet with front grille air inlet and top air outlet.
- B. Coil: Fin-and-tube coil fabricated of copper, with copper or aluminum fins spaced no closer than 0.1 inch. Test for leaks to 375 psig under water.
- C. Fan and Motor: Centrifugal blower, direct driven by a single-phase, 2-speed electric motor with inherent overload protection and resilient motor/fan mount.
- D. Wiring Terminations: Match conductor materials and sizes indicated.
- E. Filter: Manufacturer's standard throwaway filter, 1 inch thick, on inlet of each fan.
- F. Unit Controls: Fan-speed switch and fan ON-AUTOMATIC switch to be unit mounted. Thermostate with night-setback and locking cover to be wall mounted.
- G. Optional Accessories: Include the following:
  - 1. Disconnect switch.
  - 2. Kickplate base for floor-mounted units.
- H. Finish cabinet with manufacturer's standard enamel, color as selected by Architect.

2.3 HYDRONIC PROPELLER UNIT HEATERS

- A. Description: An assembly including casing, coil, fan, and motor horizontal discharge configuration with horizontal, adjustable louvers in blow-through configuration.
- B. Coil: Fin-and-tube coil fabricated of copper, with copper or aluminum fins spaced no closer than 0.1 inch (2.5 mm). Test for leaks to 375 psig under water.

- C. Fan and Motor: Multispeed motor with integral thermal-overload protection. Propeller with aluminum blades directly connected to motor.
- D. Controls: Unit-mounted fan-speed switch and wall-mounting thermostat. Coordinate with owner for thermostat locations.
- E. Finish cabinet with manufacturer's standard enamel.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and supports to receive unit heaters for compliance with requirements for installation tolerances and other conditions affecting performance of units. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install unit heaters as indicated, according to manufacturer's written instructions and NFPA 90A.
- B. Connect unit heaters and components to wiring systems and to ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening requirements specified in UL 486A.

### 3.3 FIELD QUALITY CONTROL

- A. Testing: After installing unit heaters and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
- B. Remove and replace malfunctioning units with new units and retest.

### 3.4 CLEANING

- A. Replace filters in each cabinet unit heater to ensure filters are clean at substantial completion.

END OF SECTION 15835